





**This page intentionally left blank.**



## Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
<b>2. Law and Policy .....</b>	<b>1</b>
<b>3. Proposed Action.....</b>	<b>2</b>
3.1 Federal Parcels.....	2
3.2 Non-Federal Parcels.....	3
<b>4. Findings Summary .....</b>	<b>4</b>
<b>5. Methodology .....</b>	<b>4</b>
5.1 Wetland Assessments.....	4
5.2 Perennial Channel and Floodplain Assessments .....	4
<b>6. Federal Parcels.....</b>	<b>5</b>
6.1 Parcel 1 (Bootjack Ranch – Johnny Creek).....	5
6.1.1 Wetlands .....	5
6.1.2 Perennial Channels and Floodplains .....	6
6.2 Parcel 2 (Bootjack Ranch – Road).....	6
6.2.1 Wetlands .....	6
6.2.2 Perennial Channels and Floodplains .....	6
6.3 Parcel 3 (Bootjack Ranch – River Bench).....	6
6.3.1 Wetlands .....	7
6.3.2 Perennial Channels and Floodplains .....	7
6.4 Parcel 4 (Rancho del Sol – Middle) .....	7
6.4.1 Wetlands .....	7
6.4.2 Perennial Channels and Floodplains .....	7
6.5 Parcel 5 (Rancho del Sol – Bench Pasture) .....	8
6.5.1 Wetlands .....	8
6.5.2 Perennial Channels and Floodplains .....	8
6.6 Parcel 6 (Rancho del Sol – Inholding) .....	8
6.6.1 Wetlands .....	9
6.6.2 Perennial Channels and Floodplains .....	9
6.7 Parcel 7 (El Rancho Piñoso – J. T. Tiernan) .....	9

6.7.1 Wetlands .....	9
6.7.2 Perennial Channels and Floodplains .....	10
6.8 Parcel 8 (El Rancho Piñoso – Bench).....	10
6.8.1 Wetlands .....	10
6.8.2 Perennial Channels and Floodplains .....	10
6.9 Parcel 9 (El Rancho Piñoso – Corner).....	11
6.9.1 Wetlands .....	11
6.9.2 Perennial Channels and Floodplains .....	11
6.10 Parcel 10 (Toner Ranch – Middle Fork) .....	11
6.10.1 Wetlands .....	11
6.10.2 Perennial Channels and Floodplains .....	11
6.11 Parcel 11 (Corral Mountain) .....	12
6.11.1 Wetlands .....	12
6.11.2 Perennial Channels and Floodplains .....	13
6.12 Federal Parcels Summary .....	13
<b>7. Non-Federal Parcels .....</b>	<b>15</b>
7.1 Parcel A (Valle Seco) .....	15
7.1.1 Wetlands .....	16
7.1.2 Perennial Channels and Floodplains .....	17
7.2 Parcel B (Middle Fork) .....	17
7.2.1 Wetlands .....	17
7.2.2 Perennial Channels and Floodplains .....	18
7.3 Non-Federal Parcels Summary .....	18
<b>8. Impact of the Land Exchange .....</b>	<b>19</b>
8.1 Ownership Transfer Summary .....	19
8.2 Net Gain/Loss Summary .....	20
8.3 Floodplain Compliance .....	20
8.3.1 Conformance with Archuleta County Floodplain Regulations.....	20
8.3.2 Conformance with Hinsdale County Floodplain Regulations .....	20
<b>9. Literature Cited .....</b>	<b>21</b>
<b>10. List of Preparers .....</b>	<b>22</b>

<b>Appendix A – Exchange Parcel Maps.....</b>	<b>A-1</b>
---	------------

## List of Tables

Table 3-1. Federal Exchange Parcel Summary.....	2
Table 3-2. Non-Federal Exchange Parcel Summary.....	3
Table 6-1. Wetland and Riparian Summary: All Federal Parcels .....	13
Table 6-2. Perennial Channel and Floodplain Summary: All Federal Parcels .....	15
Table 7-1. Wetland and Riparian Summary: All Non-Federal Parcels .....	18
Table 7-2. Perennial Channel and Floodplain Summary: All Non-Federal Parcels.....	19
Table 8-1. Exchange Result Summary .....	20

## List of Maps

Map A-1. Parcel Overview Map.....	A-2
Map A-2. Federal Parcel 1: Bootjack Ranch-Johnny Creek.....	A-3
Map A-3. Federal Parcel 2: Bootjack Ranch-Ranch Road .....	A-4
Map A-4. Federal Parcel 3: Bootjack Ranch-River Bench .....	A-5
Map A-5. Federal Parcel 4: Rancho del Sol-Middle .....	A-6
Map A-6. Federal Parcel 5: Rancho del Sol-Bench Pasture .....	A-7
Map A-7. Federal Parcel 6: Rancho del Sol-Inholding .....	A-8
Map A-8. Federal Parcel 7: El Rancho Piñoso-J.T. Tiernan .....	A-9
Map A-9. Federal Parcel 8: El Rancho Piñoso-Bench.....	A-10
Map A-10. Federal Parcel 9: El Rancho Piñoso-Corner .....	A-11
Map A-11. Federal Parcel 10: Toner Ranch-Middle Fork .....	A-12
Map A-12. Federal Parcel 11: Corral Mountain.....	A-13
Map A-13. Non-Federal Parcel A – Valle Seco.....	A-14
Map A-14. Non-Federal Parcel B – Middle Fork.....	A-15

## Abbreviations and Acronyms

<	less than
ac	acres
CR	County Road
EO	Executive Order
FAC	facultative
FACW	facultative wetland
FEMA	Federal Emergency Management Agency
FSM	Forest Service Manual
GIS	Geographic Information System
GPS	Global Positioning System
LF	linear feet
NHD	National Hydrography Dataset
NWI	National Wetland Inventory
OBL	obligate wetland
Pagosa District	Pagosa Ranger District
PEM	palustrine emergent
PSS	palustrine scrub-shrub
SJNF	San Juan National Forest
USFS	United States Forest Service
WUS	waters of the U.S.



## 1. Introduction

Under the proposed Valle Seco 2019 Land Exchange, the United States Forest Service (USFS) would convey 11 parcels of National Forest System Lands (federal parcels) within the San Juan National Forest (SJNF) totaling +/- 472.05 acres, in exchange for two private land parcels (non-federal parcels) totaling +/- 900 acres. This report evaluates the quality and quantity of wetlands and floodplains proposed for exchange on both the federal parcels and the non-federal parcels.

## 2. Law and Policy

Law and policy direct that when a parcel of federal land is considered for disposal, wetlands and floodplains within the parcel must be protected. Direction can be found in Executive Order (EO) 11988 – Floodplain Management (1977) and EO 11990 – Protection of Wetlands (1977)), as well as in Forest Service Manual (FSM) 2527 (USFS 2004).

Executive Orders 11988 and 11990 direct federal agencies to avoid or minimize adverse impacts associated with the occupancy and modification of floodplains and wetlands. Both EOs direct that:

When [federally owned wetlands or] property in floodplains is proposed for lease, easement, right-of-way, or disposal to non-federal public or private parties, the federal agency shall (1) reference in the conveyance those uses that are restricted under identified federal, state, or local floodplain [or wetlands] regulations; and (2) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successors, except where prohibited by law; or (3) withhold such properties from conveyance.

Under the federal agencies' responsibility for acquiring, managing, and disposing of federal lands and facilities, EO 11988 requires federal agencies to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve natural and beneficial values served by floodplains. EO 11990 requires federal agencies minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural and beneficial values of wetlands.

FSM 2527.04b(4) directs that Regional Foresters have the responsibility to:

Ensure that all documents conveying interest in or authorizing use of floodplains and wetlands on National Forest System lands contain restrictions that will reduce the risk of loss and preserve the natural and beneficial values served by floodplains and wetlands.

In the case of land exchanges, the Forest can dispose of lands that contain wetlands without restrictions if it receives wetlands of greater than or equal value. Floodplains can be disposed of without restrictions if the floodplains to be disposed of are protected by other law or regulation, such as local floodplain regulations.

## 3. Proposed Action

The SJNF Pagosa Ranger District (Pagosa District) proposes to exchange two non-federal land parcels for eleven federal land parcels. This assessment documents the presence of wetlands and other waters of the U.S. (including perennial, intermittent, and ephemeral streams), riparian areas, and floodplains along perennial waterways.

Perennial streams within federal parcels lie within the San Juan River, Rio Blanco, and Piedra River watersheds. The only perennial streams within the non-federal parcels lie within the Piedra River watershed. Federal parcels are adjacent to the San Juan River and the West Fork of the San Juan River and contain:

- Johnny Creek (a tributary of the San Juan River)
- Deer Creek, and an unnamed tributary to Deer Creek (tributaries of the East Fork of the San Juan River)
- Castle Creek, and White Creek (tributaries of the Rio Blanco)
- Devil Creek (a tributary of the Piedra River)
- Middle Fork Piedra River.

Non-federal parcels contain the Middle Fork Piedra River. Federal and non-federal parcels are illustrated in Maps A-1 through A-14 (Appendix A).

### 3.1 Federal Parcels

Ten of the eleven federal parcels are located within Archuleta County, Colorado, with the remaining parcel located in adjacent Hinsdale County, Colorado. These parcels are clustered in five main areas, adjacent to the following privately-owned ranches:

- Bootjack Ranch in northeast Archuleta County (Parcels 1, 2, and 3)
- Rancho del Sol in east-central Archuleta County (Parcels 4, 5, and 6)
- El Rancho Piñoso in east-central Archuleta County (Parcels 7, 8, and 9)
- Toner Ranch in south-central Hinsdale County (Parcel 10)
- Piedra Valley Ranch in northwest Archuleta County (Parcel 11)

Individual parcel names and acreages are shown in Table 3-1 and their relative locations within the SJNF are illustrated on Map A-1 (Appendix A).

**Table 3-1. Federal Exchange Parcel Summary**

Parcel Number	County	Parcel Group/ Ranch Adjacency	Parcel Name	Acres <sup>1</sup>
1	Archuleta	Bootjack Ranch	Johnny Creek	175.48
2			Ranch Road	0.66
3			River Bench	16.4
Parcel Group-Bootjack Ranch Subtotal:				192.54

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

Parcel Number	County	Parcel Group/ Ranch Adjacency	Parcel Name	Acres <sup>1</sup>
4	Archuleta	Rancho del Sol	Middle	80.0
5			Bench Pasture	33.0
6			Inholding	20.0
Parcel Group-Rancho del Sol Subtotal:				133.0
7	Archuleta	El Rancho Piñoso	J. T. Tiernan	55.0
8			Bench	3.47
9			Corner	0.02
Parcel Group El Rancho Piñoso Subtotal:				58.49
10	Hinsdale	Toner Ranch	Middle Fork	20.0
11	Archuleta	Piedra Valley Ranch	Corral Mountain	68.0
TOTAL:				472.05

<sup>1</sup> All parcel acreages from the USFS Valle Seco Land Exchange – Agreement to Initiate (May 2019).

## 3.2 Non-Federal Parcels

The two non-federal parcels are located within Archuleta and Hinsdale Counties. Of the non-federal parcels, the Valle Seco parcel (referred to herein as Parcel A) (approximately 880 acres) is an inholding in Archuleta County surrounded by SJNF lands administered by the Pagosa District. The Middle Fork non-federal parcel (referred to herein as Parcel B) (approximately 20 acres), lies in Hinsdale County, sharing its north and east boundaries with existing SJNF lands administered by the Pagosa District.

Individual parcel names, current ownership, and acreages are shown in Table 3-2, and are illustrated on Map A-1 (Appendix A).

**Table 3-2. Non-Federal Exchange Parcel Summary**

Parcel Number	County	Current Ownership <sup>1,2</sup>	Parcel Name	Location	Acres <sup>2</sup>
A	Archuleta	Bootjack Ranch, LLC 1900 Dalrock Rd. Rowlett, TX 75088	Valle Seco	SJNF Pagosa District Inholding	880
B	Hinsdale	Lindner et al. 3955 Montgomery Rd Cincinnati, OH 45212	Middle Fork	Adjacent to SJNF Pagosa District Administered Lands	20
<b>TOTAL:</b>					<b>900</b>

<sup>1</sup> Source: Archuleta County Assessor's Office, available at [www.assessorrecords.archuletacounty.org](http://www.assessorrecords.archuletacounty.org), or Hinsdale County Assessor's Office Ownership Tax Roll dated March 13, 2019, page 245, available at <https://www.colorado.gov/pacific/hinsdalecounty/assessors-office>. Accessed August 20, 2019.

<sup>2</sup> All parcel acreages from the USFS Valle Seco Land Exchange – Agreement to Initiate (May 2019).

## 4. Findings Summary

Under the proposed exchange, there would be a net gain to the US of approximately 6.64 acres of wetlands and 31,325 linear feet (LF) of intermittent/ephemeral channel. There would be a net loss of approximately 1.35 acres of riparian habitat, 5,105 LF of perennial channel, 1.15 acres of bankfull area on perennial channels, and 4.70 acres of perennial channel floodplain area. No hazards to life or property are known to exist in the wetland or floodplain areas involved. There is an abundance of these types of wetlands and floodplains within the watersheds that the proposed exchange parcels occupy.

## 5. Methodology

An assessment was performed for each federal and non-federal parcel to determine the presence/absence of wetlands, perennial channels, and floodplains. The parcel assessments were performed using topographic maps, Geographic Information System (GIS) data, Google Earth aerial photographs, and field observations and Global Positioning System (GPS) and field measurements recorded in July and August 2019.

### 5.1 Wetland Assessments

Wetland areas and other waters of the US (WUS), including intermittent/ephemeral drainages, were initially identified on each of the federal and non-federal parcels through desktop GIS mapping—including review of the National Wetland Inventory (NWI) (USFWS 2017) and the National Hydrography Dataset (NHD) (USGS 2008), and review of Google Earth aerial photographs back to the early 1990s. Perennial drainages are addressed with the assessment of floodplains (see Section 5.2).

Ground-truthing of wetland and WUS features was completed during the field visits. Each potential wetland from the NWI and NHD within a parcel was reviewed in the field to confirm its presence or absence. If not previously mapped by the NWI or NHD, any additional wetland features observed in the field were subsequently mapped using a Trimble R1 GPS and the ESRI Arc Collector application and imported into ArcGIS to create the maps included in this report.

Wetland hydrology and dominance of hydric vegetation (species rated as FAC [facultative], FACW [facultative wetland], and OBL [obligate wetland] by the National Wetland Plant List [Lichvar et al. 2014]) were used as easily observable indicators of potential wetland conditions. A formal wetland delineation following the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987)—which includes a more rigorous investigation of hydric plants, hydric soils, and hydrology was not completed as part of the assessment.

### 5.2 Perennial Channel and Floodplain Assessments

Perennial channels on each of the federal and non-federal parcels were initially identified using GIS desktop mapping of NHD “bluelines” (USGS 2008). Each perennial blueline from the NHD within a parcel was reviewed in the field to confirm its perennial nature. If not previously mapped by the NHD, any additional perennial features observed in the field were subsequently mapped using a Trimble R1 GPS and the ESRI Arc Collector application.

Geomorphic floodplains along perennial channels were determined by measuring the distance across the bankfull channel and the depth of the bankfull channel in two locations along the perennial waterway within the parcel. An average bankfull width was calculated and multiplied by the linear footage of the perennial waterway across the parcel to determine the bankfull area in acres.

For Federal Emergency Management Agency (FEMA) floodplain mapping, FEMA Flood Insurance Rate Maps were consulted (FEMA 2019) to determine whether any 100-year floodplains were present in any of the parcels, and whether the exchange could potentially result in any development within floodplains (Archuleta County 2019, Hinsdale County 2011, State of Colorado 2019).

## 6. Federal Parcels

### 6.1 Parcel 1 (Bootjack Ranch – Johnny Creek)

Parcel 1 (Bootjack Ranch – Johnny Creek) is situated on a steep, northwest-facing slope heavily forested with warm/dry mixed conifer<sup>1</sup> and aspen. A large, open meadow at the base of the slope is in the extreme western portion of the parcel. The parcel contains two irrigation diversions near the western boundary: Langworthy Ditch off the north side of Johnny Creek and Johnny Creek Ditch off the south side of Johnny Creek. Parcel 1 also contains an irrigation diversion (Deer Creek Ditch) off the south side of Deer Creek near the northwest corner (see Appendix A, Map A-2).

#### 6.1.1 Wetlands

Parcel 1 contains palustrine emergent (PEM) wetlands and riparian fringe along the perennial drainages. There are no mapped intermittent/ephemeral drainages.

A 1.30-acre PEM wet meadow supported by irrigation from Langworthy Ditch is in the western portion of the parcel. A spring and associated spring box are located north/downslope of this ditch, and surface and subsurface flows from the spring support an additional approximately 0.15 acre of additional PEM wetlands at the forest/meadow interface. Dominant species in both locations include meadow foxtail (*Alopecurus pratensis*), several sedge species (*Carex* spp.), timothy (*Phleum pratense*), mountain rush (*Juncus arcticus* ssp. *littoralis*), and meadow fescue (*Schedonorus pratensis*).

Johnny Creek, Deer Creek, and an unnamed tributary to Deer Creek are all perennial drainages that flow through Parcel 1. Along each of these streams, riparian vegetation composed primarily of thinleaf alder (*Alnus incana* ssp. *tenuifolia*), willows (*Salix* spp.), redosier dogwood (*Cornus sericea*), twinleaf honeysuckle (*Lonicera involucrata*), large-leaved avens (*Geum macrophyllum*), and smooth horsetail (*Equisetum laevigatum*) occur within the geomorphic floodplains. The riparian zone along Johnny Creek and Deer Creek averages 6.5 feet wide

---

<sup>1</sup> Warm/dry mixed conifer forests are generally dominated by ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*) but also may include white fir (*Abies concolor*) and aspen (*Populus tremuloides*).

on each side of the channel; it is only approximately 3 feet wide on each side along the unnamed tributary to Deer Creek.

Parcel 1 contains 1.45 acres of PEM wetlands, and approximately 2,797 LF (0.77 acre) of streamside riparian zones along perennial drainages. Details are provided in Table 6-1 in Section 6.12.

## 6.1.2 Perennial Channels and Floodplains

Parcel 1 contains geomorphic floodplains but no regulatory floodplains. Parcel 1 contains segments of Johnny Creek, Deer Creek, and an unnamed tributary of Deer Creek, all of which are perennial (see Appendix A, Map A-2).

- Johnny Creek has 1,973 LF of channel across the parcel, a geomorphic floodplain, a bankfull area of 0.36 acre, and a floodplain area of 0.59 acre.
- Deer Creek has 397 LF of channel across the parcel, a geomorphic floodplain, a bankfull area of 0.06 acre, and a floodplain area of 0.12 acre.
- An unnamed tributary to Deer Creek has 427 LF of channel across the parcel, a geomorphic floodplain, a bankfull area of 0.04 acre, and a floodplain area of 0.06 acre.

The total linear footage of perennial channel on Parcel 1 is 2,797 LF; total bankfull area is 0.46 acre and total floodplain area is 0.77 acre. Details of each segment are provided in Table 6-2 in Section 6.12.

## 6.2 Parcel 2 (Bootjack Ranch – Road)

Parcel 2 (Bootjack Ranch – Road) is a very small parcel located at the base of a dry, northeast-facing hillside with Gambel oak (*Quercus gambelii*) and open grassland cover above the West Fork of the San Juan River.

### 6.2.1 Wetlands

Desktop and field review revealed no indications that any areas on Parcel 2 support intermittent/ephemeral drainages or wetland habitat (see Appendix A, Map A-3).

### 6.2.2 Perennial Channels and Floodplains

Parcel 2 contains no perennial channels or floodplains. It is outside and above the geomorphic and regulatory (FEMA Zone A) floodplain for the West Fork of the San Juan River.

## 6.3 Parcel 3 (Bootjack Ranch – River Bench)

Parcel 3 (Bootjack Ranch – River Bench) is located along—but not directly abutting—the east side of the main San Juan River channel (Appendix A, Map A-4). The western and northern parcel boundaries are located 100 feet from the medial line of the San Juan River.

## 6.3.1 Wetlands

Parcel 3 contains PEM wetlands and an unnamed intermittent channel. There are no perennial drainages within the parcel.

The NHD-mapped intermittent channel (mis-mapped by the NHD as Johnny Creek) enters the parcel's eastern boundary and flows westerly to the San Juan River (Appendix A, Map A-4). In July 2019, very low flows were observed at the eastern boundary and within the lower sections of the terrace slope, but the channel did not carry any flows in the middle of the parcel where the channel entered the geomorphic floodplain area (at the base of the terrace). It is therefore not considered a perennial channel.

Once the drainage descends into the San Juan River floodplain, larger areas of PEM occur with sedges, fowl mannagrass (*Glyceria striata*), cutleaf coneflower (*Rudbeckia laciniata*), smooth horsetail, and an overstory of scattered thinleaf alder and willows. These wetland areas are supported by the flows of the intermittent channel and the shallow water table of the river.

Parcel 3 contains approximately 970 LF of intermittent channel and 0.19 acre of palustrine emergent wetland in the river floodplain. Details are provided in Table 6-1 in Section 6.12.

## 6.3.2 Perennial Channels and Floodplains

Parcel 3 contains a regulatory floodplain (FEMA Zone A) on the San Juan River along its western boundary. The east side of the river floodplain is constrained by a distinct terrace that roughly parallels the valley bottom. Field mapping of the terrace feature rather than FEMA mapping was used to estimate floodplain acreage.

There is no perennial channel within Parcel 3. However, the total floodplain area of the San Juan River within the parcel is 3.17 acres. Details are provided in Table 6-2 in Section 6.12.

## 6.4 Parcel 4 (Rancho del Sol – Middle)

Parcel 4 (Rancho del sol – Middle) is located on a steep, dry, north-facing, hillslope forested by warm/dry mixed conifer stands south of the Rio Blanco (Appendix A, Map A-5).

### 6.4.1 Wetlands

Desktop and field review revealed no intermittent/ephemeral drainages and no indication that any areas on Parcel 4 support wetland habitat.

### 6.4.2 Perennial Channels and Floodplains

Parcel 4 contains no perennial channels or floodplains.

## 6.5 Parcel 5 (Rancho del Sol – Bench Pasture)

Parcel 5 (Rancho del Sol – Bench Pasture) is located on a north-facing, warm/dry mixed conifer forested slope that drops down to a ponderosa pine open forest on a bench approximately 80 feet in elevation above the Rio Blanco (Appendix A, Map A-6).

### 6.5.1 Wetlands

Parcel 5 contains PEM wetland habitat. There are no mapped intermittent/ephemeral drainages.

A constructed stock pond that straddles the southern parcel boundary supported standing water in July 2019; approximately 0.04 acre of PEM wetland at the pond is located within Parcel 5. The pond is heavily impacted by livestock (cattle). The PEM wetland is low quality and the open water of the pond was turbid at the time of the visit. Dominant vegetation included common spikerush (*Eleocharis palustris*), toad rush (*Juncus bufonius*), and cattail (*Typha latifolia*). Aquatic species include sporadic Pennsylvania smartweed (*Persicaria pensylvanica*) and narrowleaf bur-reed (*Sparganium angustifolium*) individuals. Musk thistle (*Carduus nutans*) and common mullein (*Verbascum thapsus*) were prevalent on the uplands surrounding the pond. Musk thistle is a B-list State noxious weed (weeds requiring management to stop their spread) and mullein is a List C species (management requirements are left to local governmental jurisdictions with State support for management plans) (CDA 2017).

There was no flow discharging from the pond's outlet pipe (a standpipe feeding into a culvert) at the time of the visit, but water was observed seeping into a steep, short drainage swale downstream of the culvert. This was presumed to be seepage through the pond's constructed embankment. This seepage initially channelized for a short distance before dissipating within 150 feet downslope of the culvert; the seepage supported a low quality, 0.04-acre PEM wetland. Vegetation was dominated by sedges interspersed with dense patches of Canada thistle (*Cirsium arvense*) (Class B noxious weed), musk thistle, and bull thistle (*Cirsium vulgare*) (Class B noxious weed). Prevalence of meadow barley (*Hordeum brachyantherum*) and stinging nettle (*Urtica dioica*) increased downslope as thistle cover diminished.

Parcel 5 contains a total of approximately 0.08 acre of PEM wetland at the pond and along the drainage and slope below the stockpond. Details are summarized in Table 6-1 in Section 6.12.

### 6.5.2 Perennial Channels and Floodplains

Parcel 5 contains no perennial channels or associated floodplains. It is located on terraces that are well above the Rio Blanco, and as such it is outside of the Rio Blanco geomorphic and regulatory (FEMA Zone A) floodplains.

## 6.6 Parcel 6 (Rancho del Sol – Inholding)

Parcel 6 (Rancho del Sol – Inholding) is located on a dry, northwest-facing slope forested by warm/dry mixed conifer stands (Appendix A, Map A-7).



## 6.6.1 Wetlands

Parcel 6 supports PEM wetlands along a perennial channel not mapped by NHD or NWI. An ephemeral drainage mapped by the NHD south of the parcel terminates mid-slope for no apparent reason. On the ground, that same drainage appears to be more perennial in nature and flows in a northwesterly direction across the southwest corner of Parcel 6. It enters the parcel along the south boundary as a braided channel but exits along the west boundary as a single channel. A small pond was identified upslope of the parcel (offsite) on the same drainage, and the drainage feeds impoundments/ponds downstream of the parcel (offsite).

The wetland area on Parcel 6 is has a relatively diverse vegetation composition and is in good condition. No effects of current livestock grazing were noted. Grazing may occur upslope of the south boundary, but this has not been confirmed. Dominant vegetation in the wetland areas surrounding the channel include timothy, meadow foxtail, cutleaf coneflower, fowl mannagrass, and field mint (*Mentha arvensis*). The shrub layer consists primarily of snowberry (*Symphoricarpos* sp.) and shrubby cinquefoil (*Dasiphora fruticosa*).

Parcel 6 contains approximately 0.10 acre of PEM surrounding the channel. Details are summarized in Table 6-1 in Section 6.12.

## 6.6.2 Perennial Channels and Floodplains

Parcel 6 supports a small perennial channel with a narrow geomorphic floodplain in the southwest corner of the parcel, but no regulatory floodplain. It appears that water in the channel originates from the hillslope area just south of the southern boundary (Appendix A, Map A-7).

The total linear footage of perennial channel (unnamed) on Parcel 6 is 345 LF; the total bankfull area is 0.16 acre and the total floodplain area is 0.05 acre. Details are summarized in Table 6-2 in Section 6.12.

## 6.7 Parcel 7 (El Rancho Piñoso – J. T. Tiernan)

Parcel 7 (El Rancho Piñoso – J. T. Tiernan) is located on a north-facing warm/dry mixed conifer slope south of the Rio Blanco. White Creek and Castle Creek converge within the parcel boundary. An irrigation diversion (J. T. Tiernan Ditch) exists on the west side of White Creek near the southern boundary and the ditch flows west and then north off the parcel near the middle of the northern boundary (Appendix A, Map A-8).

### 6.7.1 Wetlands

Parcel 7 contains riparian habitat along perennial drainages. There are no mapped or observed wetlands within the parcel.

Castle Creek and White Creek are perennial drainages that flow through Parcel 7; each support riparian habitat along their lengths in the parcel. Riparian vegetation in the geomorphic floodplains is composed primarily of thinleaf alder, willows, redosier dogwood, twinleaf honeysuckle, sedges, fowl mannagrass, and cutleaf coneflower. Canada thistle occurs periodically throughout the parcel. The riparian zone along Castle Creek averages 2 feet wide on each side of the channel. Along White Creek, the riparian zone is wider, averaging 8 feet on either side of the channel.

Parcel 7 contains approximately 1,413 LF (0.48 acre) of streamside riparian zones along perennial drainages. Details are summarized in Table 6-1 in Section 6.12.

## 6.7.2 Perennial Channels and Floodplains

Parcel 7 contains two perennial channels on the east side of the parcel: Castle Creek and White Creek. Both channels support geomorphic floodplains but no regulatory floodplains. Castle Creek is a tributary of White Creek.

- Castle Creek has 138 LF of channel across the parcel, a geomorphic floodplain, a bankfull area of 0.01 acre, and a floodplain area of 0.01 acre.
- White Creek has 1,275 LF of channel across the parcel, a geomorphic floodplain, a bankfull area of 0.18 acres, and a floodplain area of 0.47 acre.

The total linear footage of perennial channel on Parcel 7 is 1,413 LF, total bankfull area is 0.19 acre, and total floodplain area is 0.48 acre. Details of each segment are provided in Table 6-2 in Section 6.12.

## 6.8 Parcel 8 (El Rancho Piñoso – Bench)

Parcel 8 (El Rancho Piñoso – Bench) is located on a cool, southwest-facing, aspen-dominated hillslope on a saddle between two adjacent hills (Appendix A, Map A-9).

### 6.8.1 Wetlands

Parcel 8 contains an ephemeral drainage that supports PEM wetlands. There may also be a small, seasonal, unmapped spring or springs near the north end of the parcel that help support the wetlands.

A 0.40-acre PEM slope wetland is located across the center part of the parcel. Dominant species include woolly sedge (*Carex pellita*) and other sedges, mountain rush, fowl mannagrass, field horsetail (*Equisetum arvense*) and smooth horsetail. Shrub cover consists primarily of shrubby cinquefoil and Bebb willow (*Salix bebbiana*). Canada thistle is common throughout the wetland area. The NHD has mapped an ephemeral channel through the parcel that helps support this PEM wetland.

Parcel 8 contains approximately 435 LF of ephemeral channel, and 0.40 acre of PEM wetlands. Details are summarized in Table 6-1 in Section 6.12.

### 6.8.2 Perennial Channels and Floodplains

Parcel 8 contains no perennial channels or floodplains. Desktop and field review found no perennial channels or floodplains.

## 6.9 Parcel 9 (El Rancho Piñoso – Corner)

Parcel 9 (El Rancho Piñoso – Corner) is a very small, triangular parcel that crosses County Road (CR) 326/Blanco Basin Road and includes an irrigation ditch (name unknown) that flows southwest along the south side of CR 326/Blanco Basin Road (Appendix A, Map A-10).

### 6.9.1 Wetlands

Parcel 9 contains 0.01 acre of palustrine scrub-shrub (PSS) wetlands along the irrigation ditch, dominated by narrowleaf willow (*Salix exigua*) and beaked sedge (*Carex utriculata*). There are no mapped intermittent/ephemeral drainages on the parcel. Details are summarized in Table 6-1 in Section 6.12.

### 6.9.2 Perennial Channels and Floodplains

Parcel 9 contains no perennial channels or floodplains.

## 6.10 Parcel 10 (Toner Ranch – Middle Fork)

Parcel 10 (Toner Ranch – Middle Fork) is located on gently rolling hills with an open ponderosa pine forest and meadow openings. It is roughly bisected by the Middle Fork Piedra River. Parcel 10's northwest corner is Parcel B's southeast corner (Appendix A, Map A-11).

### 6.10.1 Wetlands

Parcel 10 contains PEM wetlands, and riparian fringe along the Middle Fork Piedra River. There are no mapped intermittent/ephemeral drainages.

A 0.14-acre PEM wetland along the east boundary line supports sedges, redtop (*Agrostis stolonifera*), mountain rush, and meadow barley. This wetland may be irrigation-supported, but there were no flows in the wetland at the time of the site visit. A low terrace within the river floodplain located on river-left, immediately downstream of a sheer, shale escarpment, supports a 0.22-acre PEM wetland consisting of sedges, fowl mannagrass, cutleaf coneflower, mountain rush, and smooth horsetail with alder and various willow species.

The Middle Fork Piedra River supports an average 8.5-foot-wide riparian fringe along each bank of the river, dominated by thinleaf alder, various willow species, and mesic grasses and forbs in the understory.

Parcel 10 contains approximately 738 LF of perennial river channel, 0.36 acres of PEM wetlands, and approximately 738 LF (0.25 acre) of riparian zones along the riverbanks. Details are summarized in Table 6-1 in Section 6.12.

### 6.10.2 Perennial Channels and Floodplains

Parcel 10 (Toner Ranch – Middle Fork) is roughly bisected by the Middle Fork Piedra River (perennial). It has distinct terrace features on each side of the river that defines its geomorphic floodplain. It also has a regulatory

floodplain (FEMA Zone A). The floodplain area is calculated from GPS mapping of the confining geomorphic terrace features rather than FEMA mapping. Parcel 10's northwest corner is Parcel B's southeast corner.

The total linear footage of perennial channel (Middle Fork Piedra River) on Parcel 10 is 738 LF; the total bankfull area is 0.68 acre and the total floodplain area is 2.44 acres. Details of each segment are provided in Table 6-2 in Section 6.12.

## 6.11 Parcel 11 (Corral Mountain)

Parcel 11 (Corral Mountain) is located on the lower, east-facing slopes of Corral Mountain, situated in ponderosa pine and Gambel oak dominated forests with meadow openings.

### 6.11.1 Wetlands

Parcel 11 contains PEM wetlands. There are no mapped intermittent/ephemeral drainages (Appendix A, Map A-12).

Two small constructed ponds on Parcel 11 had standing water in July 2019; the northern pond supports approximately 0.12 acre of PEM wetland, and the southern pond supports 0.02 acre of PEM wetland. The northern pond appears to be somewhat regularly impacted by livestock (cattle). The wetland fringe around the pond is low to moderate quality and the open water was turbid at the time of the visit. However, many hundreds of metamorphosing tiger salamander larvae (*Ambystoma* sp.) were observed in the pond. Dominant vegetation included common spikerush and a mix of sedges. Aquatic species include sporadic Pennsylvania smartweed individuals. The south pond appears to be an old stockpond that is not regularly used any more, though the water was turbid at the time of the visit. It supports a good fringe of sedges along with water foxtail (*Alopecurus aequalis*).

Near the center of the parcel, the NWI had mapped a large PEM wetland that is no longer present. The meadow in which it occurred appears to be on a drying trend, and even in a year with high snowpack and a cool, wet spring, only tiny scattered patches of sedge and mountain rush (smaller than 0.001 acre) could be found. These were not documented as the hydrology supporting these patches was not apparent, and they appeared rather as remnant declining populations. A 0.12-acre PEM was found along the western fence line at the north end of the old NWI-mapped wetland area. It does not support a diversity of mesic herbaceous cover and is periodically utilized by livestock. Common species in this PEM wetland were clustered field sedge (*Carex praegracilis*), mountain rush, and timothy.

The perennial Devil Creek drainage supports a 0.07 acre, nicely diverse, PEM fringe wetland that spreads and enlarges as the slope decreases to the east. Several species of sedge were observed in dense patches including but not limited to woolly sedge and awlfruit sedge (*Carex stipata*), as well as mesic grasses, and forbs with scattered thinleaf alder and park willow (*Salix monticola*).

At the south end of the parcel, another large NWI-mapped PEM wetland was in decline, and only a narrow, 0.05-acre wetland along the road ditch remained. This area was comprised of tufted hairgrass (*Deschampsia cespitosa*), meadow barley, timothy, rushes, and shrubby cinquefoil.

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

In summary, Parcel 11 contains approximately 0.39 acre of PEM wetlands. Details are summarized in Table 6-1 in Section 6.12.

## 6.11.2 Perennial Channels and Floodplains

Parcel 11 supports one perennial channel (Devil Creek) and its associated geomorphic floodplain. No regulatory floodplain is present. The channel and floodplain are bisected by a road embankment and culvert. At the eastern end of the parcel, the gradient flattens, and the floodplain broadens as a result of an on-channel impoundment just east of the parcel boundary.

The total linear footage of perennial channel (Devil Creek) on Parcel 11 is 200 LF; the total bankfull area is 0.02 acre, and the total floodplain area is 0.06 acre. Details are provided in Table 6-2 in Section 6.12.

## 6.12 Federal Parcels Summary

The following table is a summary of wetlands, intermittent and ephemeral channels, and riparian areas for the eleven non-federal exchange parcels.

**Table 6-1. Wetland and Riparian Summary: All Federal Parcels**

Parcel Number	County	Wetland Type	Wetland Location	Wetland Area (ac)	Intermittent/ Ephemeral Channel Length (LF)	Riparian Area (ac)
1	Archuleta	Palustrine Emergent	Irrigated meadow	1.30	--	--
		Palustrine Emergent	Downslope of spring	0.15	--	--
		Riparian	Johnny Creek	--	--	0.59
		Riparian	Deer Creek	--	--	0.12
		Riparian	Unnamed tributary to Deer Creek	--	--	0.06
2	Archuleta	None	--	--	--	--
3	Archuleta	Palustrine Emergent	Depressional features in river floodplain	0.19	--	--
		Intermittent Channel	Unnamed intermittent drainage	--	970	--
4	Archuleta	None	--	--	--	--
5	Archuleta	Palustrine Emergent	Impoundment (pond)	0.04	--	--
		Palustrine Emergent	On slope below pond outlet	0.04	--	--

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

Parcel Number	County	Wetland Type	Wetland Location	Wetland Area (ac)	Intermittent/ Ephemeral Channel Length (LF)	Riparian Area (ac)
6	Archuleta	Palustrine Emergent	Along unnamed drainage	0.10	--	--
7	Archuleta	Riparian	Castle Creek	--	--	0.01
		Riparian	White Creek	--	--	0.47
8	Archuleta	Ephemeral Channel	Unnamed ephemeral drainage		435	--
		Palustrine Emergent	Slope wetland	0.40	--	--
9	Archuleta	Palustrine Scrub-Shrub	Along unnamed ditch	0.01	--	--
10	Hinsdale	Palustrine Emergent	Low terrace in river floodplain	0.22	--	--
		Palustrine Emergent	Wet meadow at east boundary	0.14	--	--
		Riparian	Middle Fork Piedra River	--	--	0.25
11	Archuleta	Palustrine Emergent	North pond (salamander pond)	0.12	--	--
		Palustrine Emergent	South pond	0.02	--	--
		Palustrine Emergent	Central wet meadow	0.12	--	--
		Palustrine Emergent	Wet meadow at south boundary	0.05	--	--
		Palustrine Emergent	Along Devil Creek	0.07	--	--
Totals:				2.97	1,405	1.50

Note: AC = acres; LF = linear feet.

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

The following table is a summary of perennial channel and floodplain characteristics for the eleven federal exchange parcels.

**Table 6-2. Perennial Channel and Floodplain Summary: All Federal Parcels**

Parcel Number	County	Perennial Channel Name	Type of Floodplain Present	Perennial Channel Length (LF)	Bankfull Area (ac)	Floodplain Area (ac)
1	Archuleta	Johnny Creek	Geomorphic	1,973	0.36	0.59
		Deer Creek	Geomorphic	397	0.06	0.12
		unnamed tributary of Deer Creek	Geomorphic	427	0.04	0.06
2	Archuleta	None	--	--	--	--
3	Archuleta	San Juan River	FEMA Zone A; Geomorphic	(river channel not on parcel)	n/a	3.17
4	Archuleta	None	--	--	--	--
5	Archuleta	None	--	--	--	--
6	Archuleta	unnamed	Geomorphic	345	0.16	0.05
7	Archuleta	Castle Creek	Geomorphic	138	0.01	0.01
		White Creek	Geomorphic	1,275	0.18	0.47
8	Archuleta	None	--	--	--	--
9	Archuleta	None	--	--	--	--
10	Hinsdale	Middle Fork Piedra River	FEMA Zone A; Geomorphic	738	0.68	2.44
11	Archuleta	Devil Creek	Geomorphic	200	0.02	0.06
<b>Totals:</b>				<b>5,493</b>	<b>1.51</b>	<b>6.97</b>

Note: AC = acre; LF = linear feet.

## 7. Non-Federal Parcels

### 7.1 Parcel A (Valle Seco)

Parcel A (Valle Seco) is the southern-most, lowest-elevation, and largest of all the federal and non-federal exchange parcels. It covers a more arid landscape of rolling hills and valleys in Mancos-shale based geology than the higher, northern parcels. Piñon (*Pinus edulis*) and juniper (*Juniperus* spp.) woodlands dominate the hills and sage (*Artemisia* spp.) and yellow rabbitbrush (*Ericameria nauseosa*) shrublands occur along the base of the hillslopes, transitioning to open grassland meadows in the valley bottoms. There are no irrigation ditches on the parcel, but eleven stock ponds have been constructed over the years. Many of these no longer hold water or support mesic or hydrophytic species.

## 7.1.1 Wetlands

Parcel A contains ephemeral channels, intermittent channels, PEM wetlands, and PSS wetlands. There are no riparian areas on the parcel. In general, when comparing historic aerial photographs with current on-the-ground conditions, it appears overall that the parcel may be transitioning to drier conditions for unknown reasons. Some areas that appeared in historic photos to have saturated soils now support a vegetation cover composition primarily comprised of upland species or a mix of facultative upland<sup>2</sup> and upland species.

The NHD has mapped approximately 13,678 LF of ephemeral channels and 19,052 LF of intermittent channels on the parcel. None of the channels had flowing water, or saturated or moist soils at the time of the visit. Ephemeral and intermittent channels have typically downcut through the erodible soils on the parcel, from only slightly to very deeply (over 8 feet). Where not eroded to bare soils on the slopes or below the ordinary high water mark, channels typically support grasses such as crested wheatgrass (*Agropyron cristatum*), western wheatgrass (*Pascopyrum smithii*), timothy, slender wheatgrass (*Elymus trachycaulus*), and small patches of mountain rush. One distinct location along the downstream reach of the main east-west intermittent channel (in the western portion of the parcel) supports a narrow 0.38-acre PEM wetland comprised of sedges, rushes, Nuttall's sunflower (*Helianthus nuttallii*) and scattered narrowleaf willow individuals.

All ephemeral and intermittent channels on the parcel eventually drain to the arroyo situated along the western boundary of the parcel (herein called the West Arroyo). As a result, this arroyo supports sedge species, mountain rush, meadow fescue, and timothy in a 2.04-acre PEM wetland along its downstream reach. In addition, scattered narrowleaf willow stands/PSS wetlands totaling 0.36 acre occur along its north-facing banks, indicating the bank likely intercepts the groundwater table at these locations. A small, additional area of PSS wetland (0.06 acre) occurs in the south-central portion of the property.

PEM wetlands also occur around the five constructed ponds that collect and sustain surface water during at least a portion of the growing season. The wetland fringe around the ponds typically includes sedges, rushes, meadow barley, common spikerush, northern water plantain (*Alisma triviale*), and rough cocklebur (*Xanthium strumarium*). These five ponds combined have a total of 0.92 acre of PEM wetlands.

The largest PEM wetland is located near the center of the parcel where several intermittent drainages converge in a broad, relatively flat valley bottom. This 5.24-acre wetland is generally dominated by clustered field sedge and mountain rush, with an overstory of taller mountain tansymustard (*Descurainia incana*). The species composition is not very diverse within this PEM wetland, and the encroachment of the tansymustard as well as other facultative upland species such as American dragonhead (*Dracocephalum parviflorum*) and tarweed (*Madia glomerata*) into the wetland area support the hypothesis that the current wetland areas on Parcel A may be on the decline and drying out.

In addition to the specific wetland locations described, there are numerous, small (< 0.05 acre) patches of low-quality, PEM wetlands across the parcel, often located in swales or near stock ponds. However, these patches are generally incidental, discontinuous, and have wetland species mixed with upland annual or weedy species.

---

<sup>2</sup> Usually occur in non-wetlands but may occur in wetlands (Lichvar et al 2014).



Across Parcel A it is estimated that these areas account for approximately 0.20 acre of low-quality wetlands. Like the PEM wetlands, there are also small, discontinuous patches of PSS wetlands (each individually < 0.05 acre) across the site typically associated with intermittent or ephemeral swales or drainages. These PSS wetland patches are estimated to total approximately 0.10 acre across the site. Due to their dispersed nature and small size, these tiny PEM and PSS patches have not been mapped on Map A-13 (Appendix A); only larger, more distinct patches have been mapped.

Russian knapweed (*Acroptilon repens*), a State B-listed noxious weed, was observed in small patches (generally < 0.10 acre or less) near several of the constructed stock ponds. Canada thistle, musk thistle, and bull thistle were noted scattered across the parcel.

Parcel A contains approximately 13,678 LF of ephemeral channel, 19,052 LF of intermittent channel, 8.78 acres of PEM wetlands, and 0.52 acre of PSS wetlands. Details are summarized in Table 7-1 in Section 7.3.

## 7.1.2 Perennial Channels and Floodplains

Parcel A contains no perennial channels or floodplains.

## 7.2 Parcel B (Middle Fork)

Like Parcel 10, Parcel B (Middle Fork) is located on rolling hills with an open ponderosa pine forest and meadow openings. The Middle Fork Piedra River and its river terraces cut across the northeast corner of the parcel. A branch of the Bess Girl Ditch roughly bisects the property north-to-south. Parcel B's southeast corner is Parcel 10's northwest corner. (Appendix A, Map A-14).

### 7.2.1 Wetlands

Parcel B contains PEM wetlands and riparian fringe along the Middle Fork Piedra River. There are no mapped intermittent/ephemeral drainages.

A PEM wetland stretches between the north and south parcel boundary in the eastern half of the parcel; however, the central portion of the shallow swale in which it is located is drier and does not support wetland vegetation. The northern part of the swale supports 0.14 acre of PEM wetland, and the southern part of the swale supports 0.17 acre of PEM wetland. Both wetland areas extend beyond the parcel boundary. Dominant species in the wetland include bluejoint grass (*Calamagrostis canadensis*), tufted hairgrass, redtop, several sedge species, fowl mannagrass, and meadow foxtail. Canada thistle is scattered throughout. This wetland may be irrigation-supported; standing water was present in the wetland at the time of the site visit.

The Middle Fork Piedra River supports an average 8.5-foot-wide riparian fringe along each bank of the 388-foot stretch of river on the parcel, which is dominated by thinleaf alder, various willow species, and mesic grasses and forbs in the understory.

Parcel B contains approximately 0.31 acre of PEM wetlands, and approximately 388 LF (0.15 acre) of riparian zones along the riverbanks. Details are summarized in Table 7-1 in Section 7.3.

## 7.2.2 Perennial Channels and Floodplains

The Middle Fork of the Piedra River across Parcel B has distinct terrace features that define the geomorphic floodplain. It also has a regulatory floodplain (FEMA Zone A). Floodplain area is calculated from GPS mapping of confining terrace features rather than FEMA mapping.

The total linear footage of perennial channel (Middle Fork Piedra River) on Parcel B is 388 LF; the total bankfull area is 0.36 acre and the total floodplain area is 2.27 acres. Details are provided in Table 7-2 in Section 7.3.

## 7.3 Non-Federal Parcels Summary

The following table is a summary of wetlands, intermittent and ephemeral channels, and riparian areas for the two non-federal exchange parcels.

**Table 7-1. Wetland and Riparian Summary: All Non-Federal Parcels**

Parcel Number	County	Wetland Type	Wetland Location	Wetland Area (ac)	Intermittent / Ephemeral Channel Length (LF)	Riparian Area (ac)
A	Archuleta	Intermittent Channel	Across parcel	--	19,052	--
		Ephemeral Channel	Across parcel	--	13,678	--
		Palustrine Emergent	Mapped features	8.58	--	--
			Additional estimated area	0.20	--	--
		Palustrine Scrub-Shrub	Mapped features	0.42	--	--
			Additional estimated area	0.10	--	--
B	Hinsdale	Palustrine Emergent	Shallow swale in western half of parcel	0.31	--	--
		Riparian	Middle Fork Piedra River	--	--	0.15
Totals:				9.61	32,730	0.15

Note: ac = acres; LF = linear feet.

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

The following table is a summary of channel and floodplain characteristics for the two non-federal exchange parcels.

**Table 7-2. Perennial Channel and Floodplain Summary: All Non-Federal Parcels**

Parcel Number	County	Perennial Channel Name	Type of Floodplain Present	Length (LF)	Bankfull Area (ac)	Floodplain Area (ac)
A	Archuleta	--	--	--	--	--
B	Hinsdale	Middle Fork Piedra River	FEMA Zone A; Geomorphic	388	0.36	2.27
<b>Totals:</b>				<b>388</b>	<b>0.36</b>	<b>2.27</b>

Note: ac = acres; LF = linear feet.

## 8. Impact of the Land Exchange

### 8.1 Ownership Transfer Summary

The land exchange would transfer ownership of the following amounts of wetlands and floodplains out of federal ownership:

- 2.97 acres of wetland
- 1,405 LF of intermittent/ephemeral channels
- 1.50 acres of riparian habitat
- 5,493 LF of perennial channel
- 1.51 acres of bankfull area
- 6.97 acres of floodplain area

The proposed exchange would transfer ownership of the following amounts of wetlands and floodplains into federal ownership:

- 9.61 acres of wetland
- 32,730 LF of intermittent/ephemeral channels
- 0.15 acres of riparian habitat
- 388 LF of perennial channel
- 0.36 acres of bankfull area
- 2.27 acres of floodplain area

## 8.2 Net Gain/Loss Summary

The land exchange would result in net gain of federal ownership of:

- 6.64 acres of wetland
- 31,325 LF of intermittent/ephemeral channels

However, the exchange would result in a net loss of federal ownership of:

- 1.35 acres of riparian habitat
- 5,105 LF of perennial channel
- 1.15 acres of bankfull area
- 4.70 acres of floodplain area

The following table provides a summary of the exchange result for the U.S. Forest Service:

**Table 8-1. Exchange Result Summary**

Current Ownership	Wetland (ac)	Intermittent/Ephemeral Channel (LF)	Riparian Area (ac)	Perennial Channel Length (LF)	Bankfull Area (ac)	Floodplain Area (ac)
Non-federal	9.61	32,730	0.15	388	0.36	2.27
Federal	2.97	1,405	1.50	5,493	1.51	6.97
Exchange Result for U.S. Forest Service	Gain 6.64	Gain 31,325	Loss 1.35	Loss 5,105	Loss 1.15	Loss 4.70

Note: ac = acre; LF = linear feet.

## 8.3 Floodplain Compliance

### 8.3.1 Conformance with Archuleta County Floodplain Regulations

The floodplain along the San Juan River on Parcel 3 is subject to Archuleta County floodplain regulations. To ensure compliance with Executive Order 11988 and Forest Service policy, a statement should be made in the Decision Notice that the Parcel 3 floodplains shall be subject to Archuleta County floodplain regulations once the parcel is conveyed into non-federal ownership. Those regulations can be found in Section 10 – Floodplain Regulations of the Archuleta County Land Use Regulation (May 2019), available for viewing at <https://www.archuletacounty.org/247/Land-Use-Regulations>.

### 8.3.2 Conformance with Hinsdale County Floodplain Regulations

Floodplains along the Middle Fork Piedra River on Parcel 10 are subject to Hinsdale County floodplain regulations. To ensure compliance with Executive Order 11988 and Forest Service policy, a statement should be

made in the Decision Notice that the Parcel 10 floodplains shall be subject to Hinsdale County floodplain regulations once the parcel is conveyed into non-federal ownership. Those regulations can be found in Section 5.17 of the Hinsdale County Zoning and Development Regulations, available for download at <https://www.colorado.gov/pacific/hinsdalecounty/atom/100761>.

## 9. Literature Cited

- Archuleta County. 2019. Archuleta County (Colorado) Land Use Regulation, Section 10 – Floodplain Regulations. <https://www.archuletacounty.org/DocumentCenter/View/2730/Sec-10---Floodplain-Regulations>
- Colorado Department of Agriculture (CDA). 2017. Noxious weed species. List effective March 31, 2017. Available online at: <https://www.colorado.gov/pacific/agconservation/noxious-weed-publications>.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineer Waterways Experiment Station. Vicksburg, MS.
- Executive Order 11988 Floodplain Management. 1977. <https://www.archives.gov/federal-register/codification/executive-order/11988.html>.
- Executive Order 11990 Protection of Wetlands. 1977. <https://www.archives.gov/federal-register/codification/executive-order/11990.html>.
- Federal Emergency Management Agency (FEMA). 2019. National Flood Hazard Layer Viewer. <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>
- Hinsdale County. 2011. Hinsdale County (Colorado) Zoning and Development Regulations, Section 5.17- Floodplain Management. <https://www.colorado.gov/pacific/hinsdalecounty/atom/100761>
- Lichvar, R. W., M. Butterwick, N. C. Melvin, and W. N. Kirchner. 2014. The National Wetland Plant List: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42. Accessed at: [http://wetland\\_plants.usace.army.mil/](http://wetland_plants.usace.army.mil/).
- State of Colorado. 2019. Colorado Decision Support Systems. <https://www.colorado.gov/cdss>
- U.S. Fish and Wildlife Service (USFWS). 2017. National Wetlands Inventory. [Online digital data.] U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. May 2017. Accessed at: <http://www.fws.gov/wetlands>.
- U.S. Forest Service (USFS). 2004. Forest Service Manual 2527 - Floodplain Management and Wetland Protection. Washington D.C.
- U.S. Geological Survey (USGS). 2008. National Hydrography Dataset, High Resolution. Reston, Virginia, USA: U.S. Geological Survey.

## 10. List of Preparers

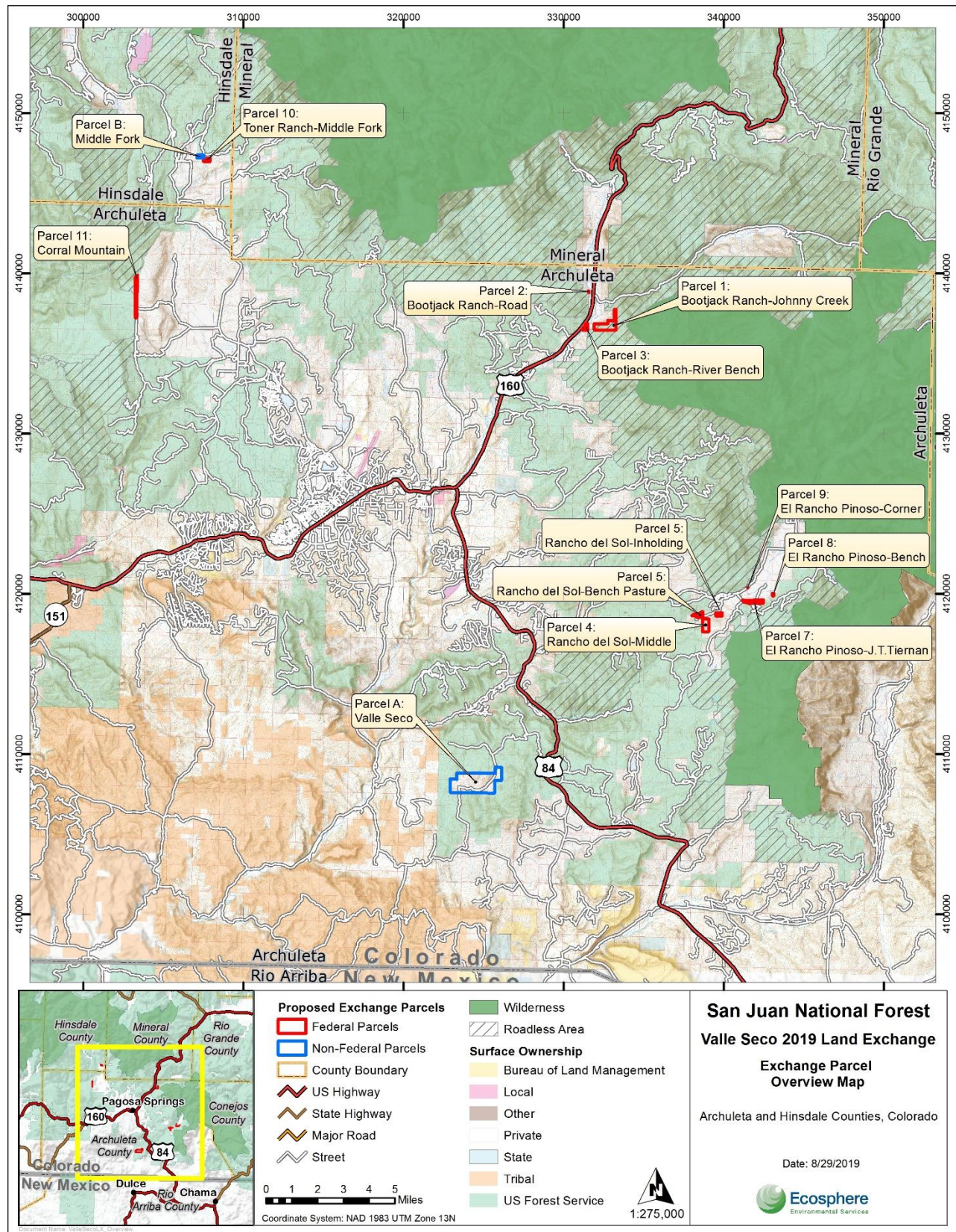
Name	Title	Role
Mike Fitzgerald	Project Manager	▪ Project Manager
Joey Herring	Senior Biologist	▪ Technical Content Review
Karin Freeman	Environmental Planner/ Wetland Specialist	▪ Document Co-Author ▪ Wetland Assessment ▪ GIS Mapping
Mark Oliver, Basin Hydrology	Hydrologist/Fluvial Geomorphologist	▪ Document Co-Author ▪ Floodplain and Perennial Channel Assessment
Cindy Lancaster	Senior Technical Editor	▪ Editing ▪ Quality Control ▪ Document Formatting

## Appendix A – Exchange Parcel Maps



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

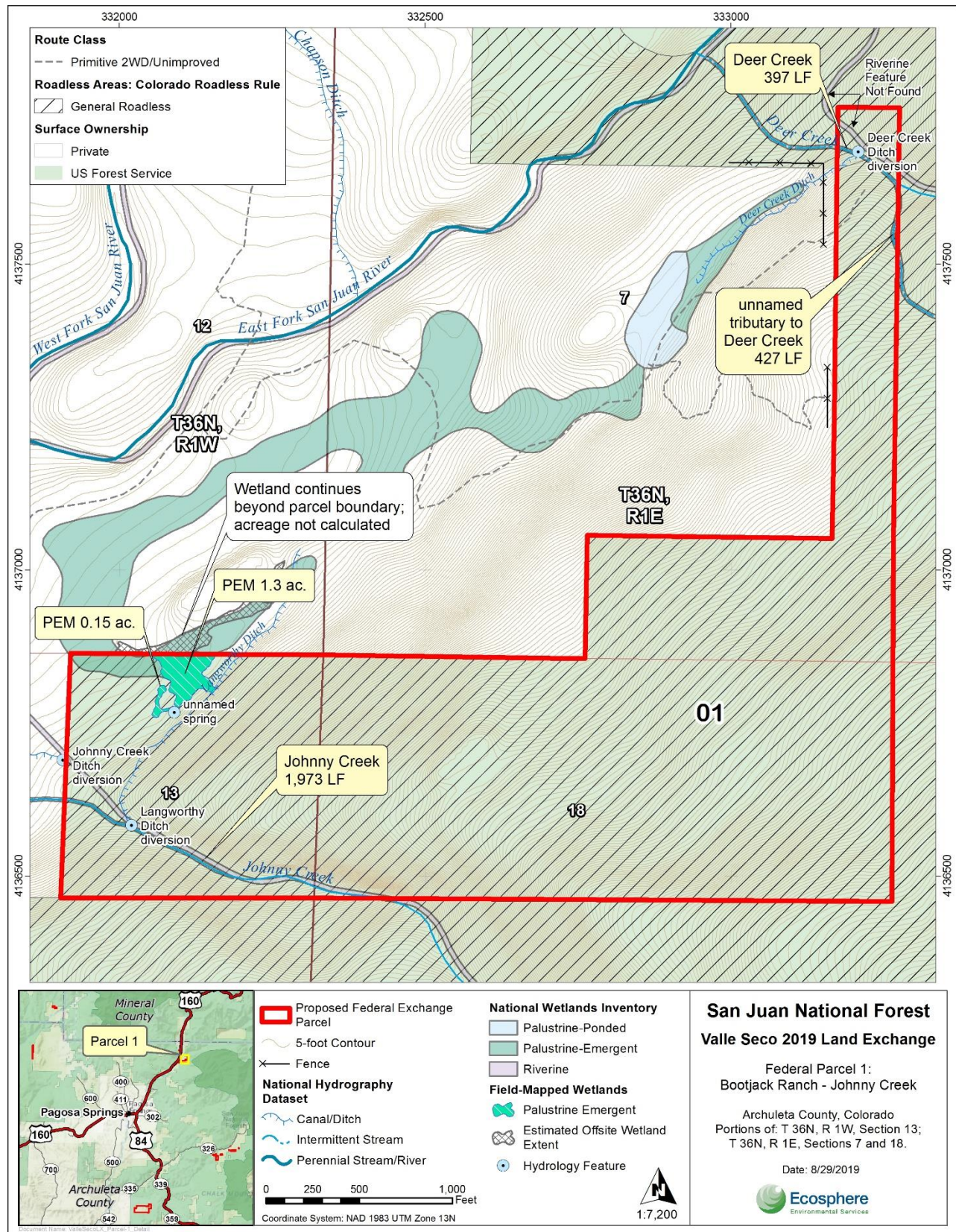


Map A-1. Parcel Overview Map



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

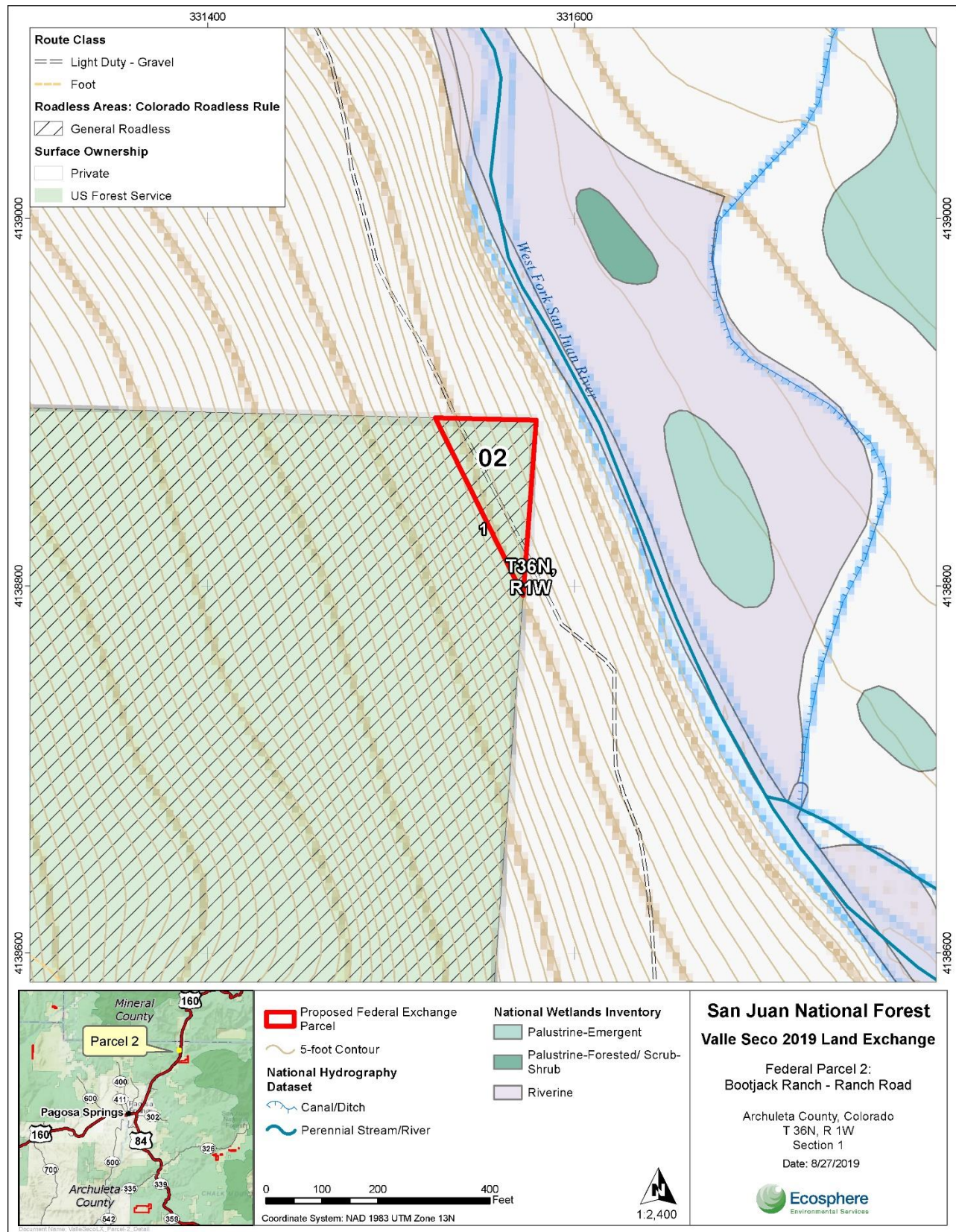


Map A-2. Federal Parcel 1: Bootjack Ranch-Johnny Creek



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

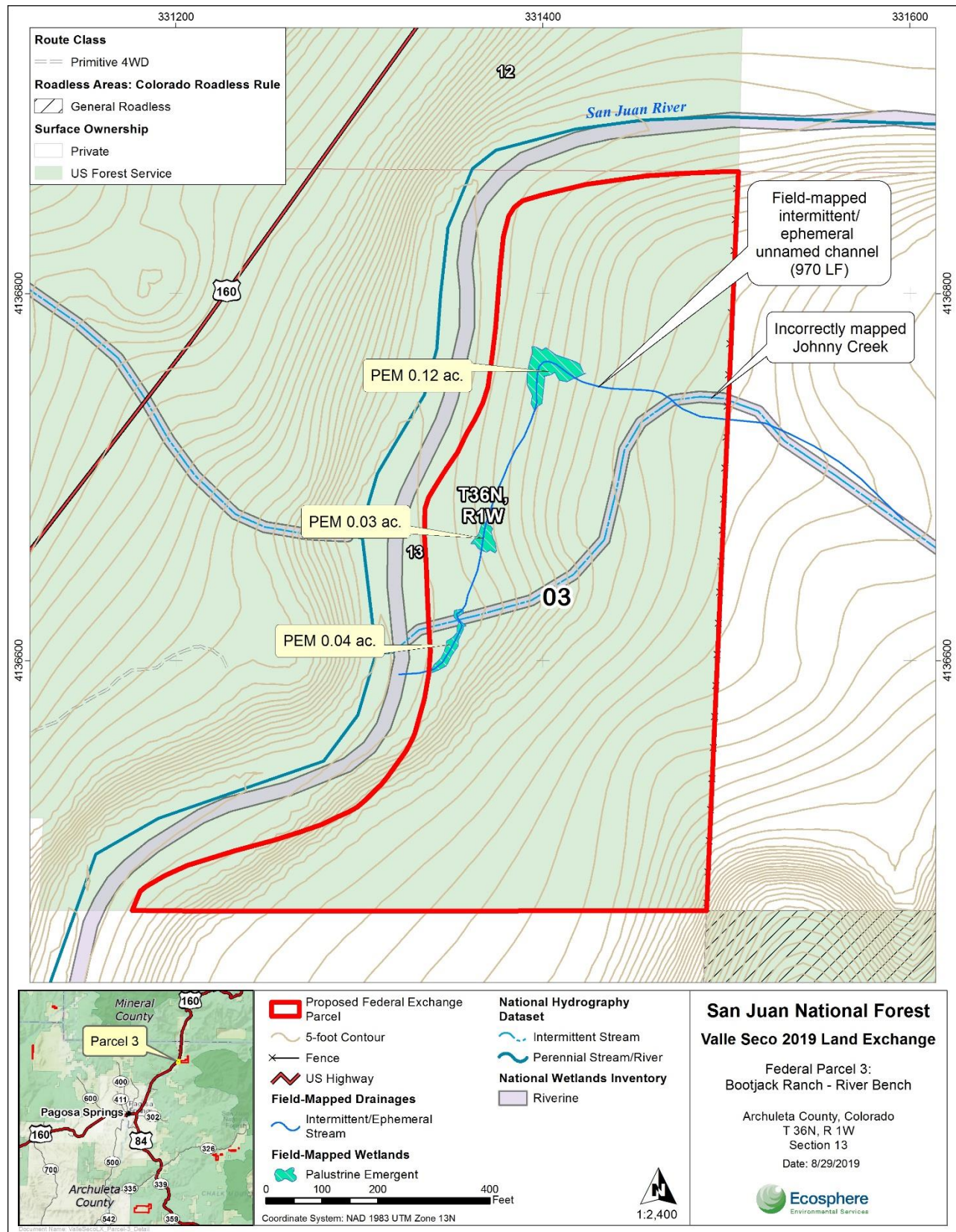


Map A-3. Federal Parcel 2: Bootjack Ranch-Ranch Road



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

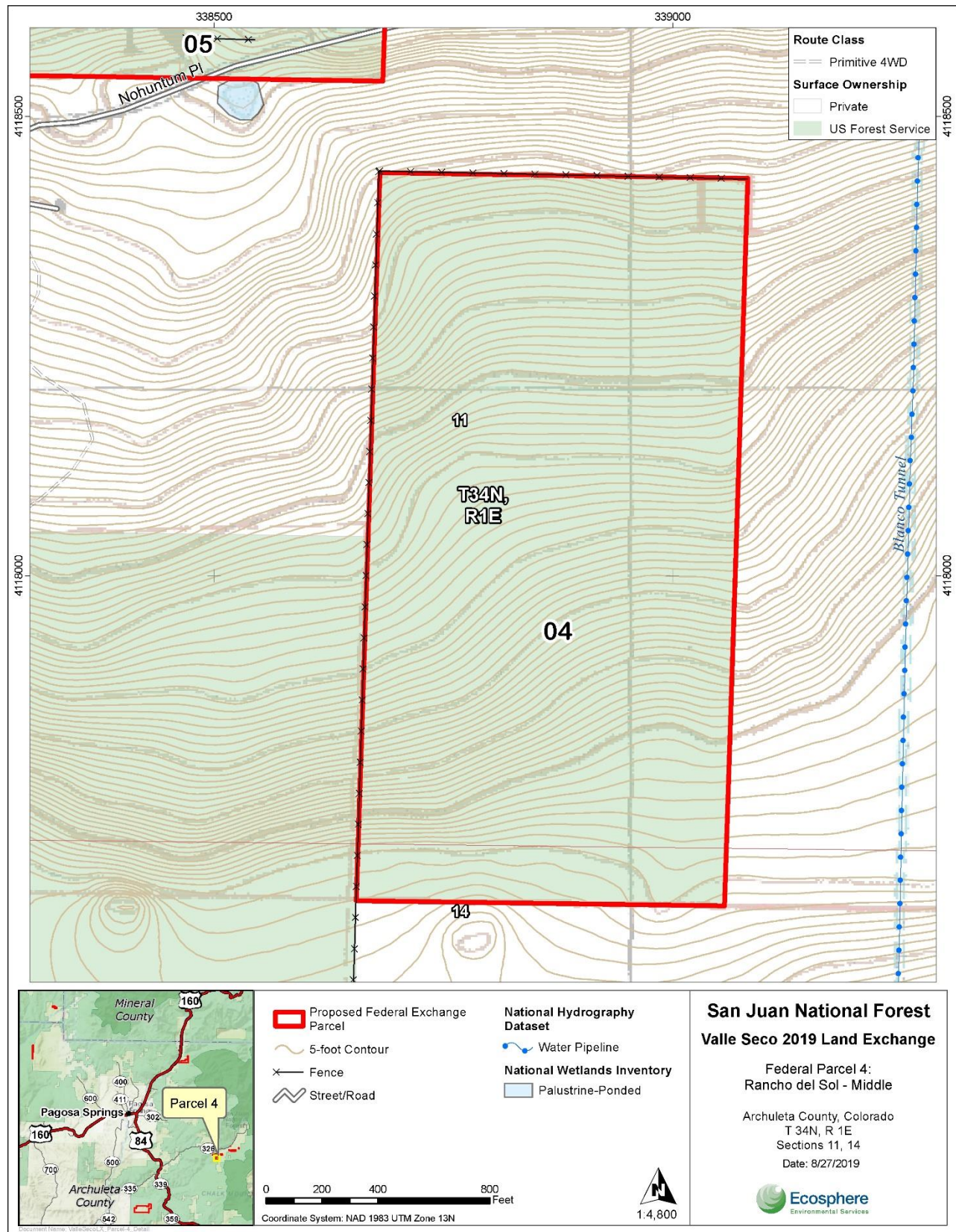


Map A-4. Federal Parcel 3: Bootjack Ranch-River Bench



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

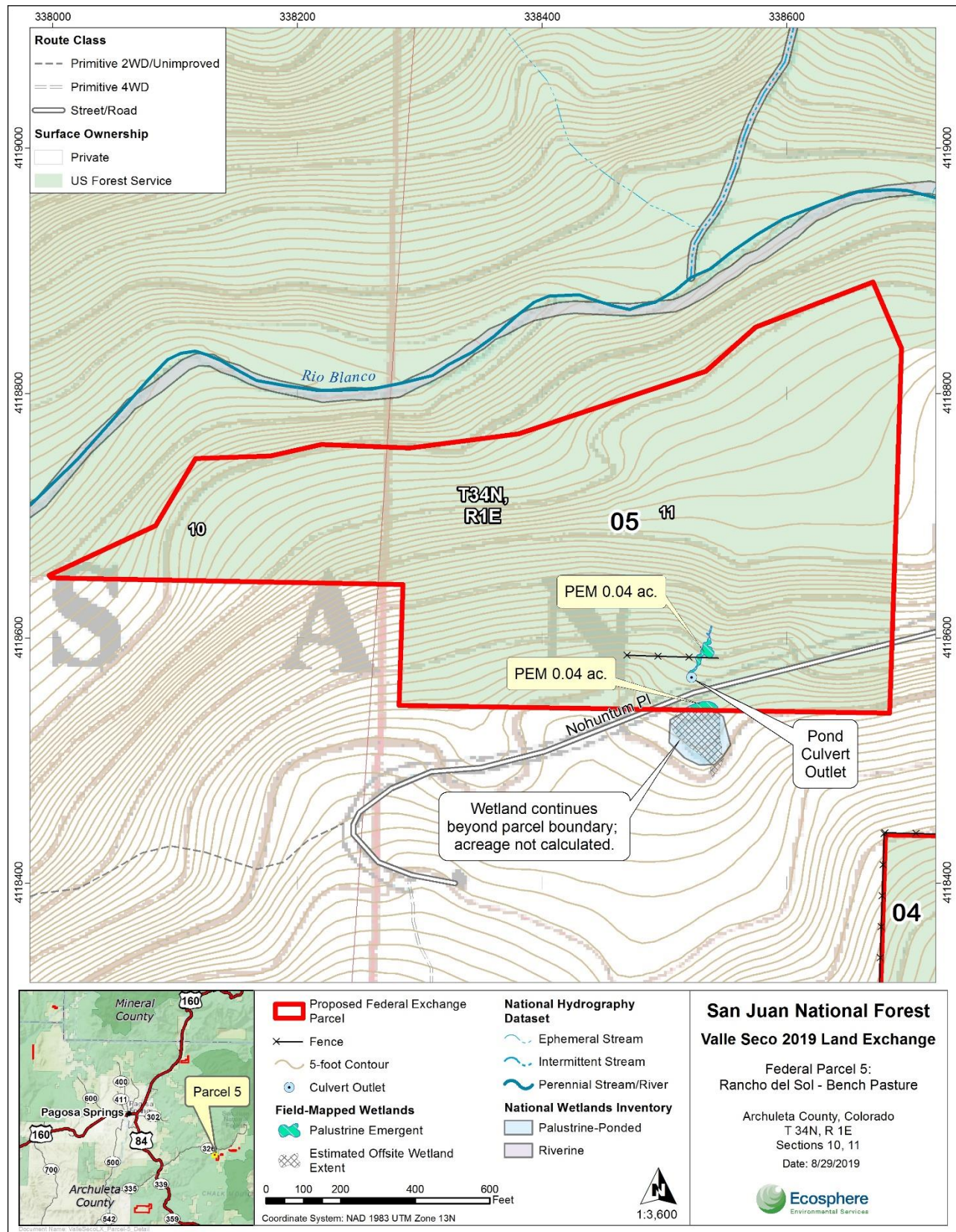


Map A-5. Federal Parcel 4: Rancho del Sol-Middle



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

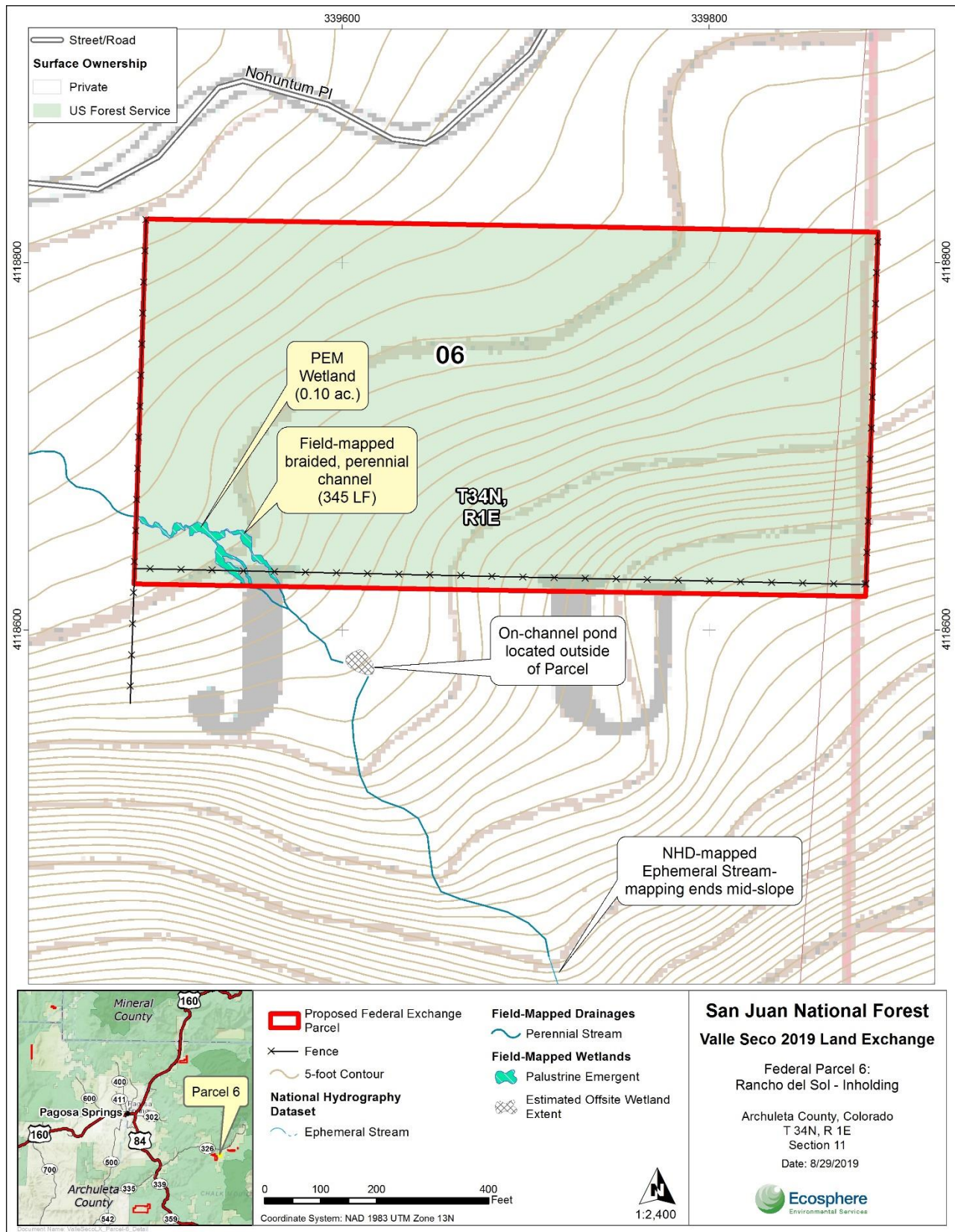


Map A-6. Federal Parcel 5: Rancho del Sol-Bench Pasture



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

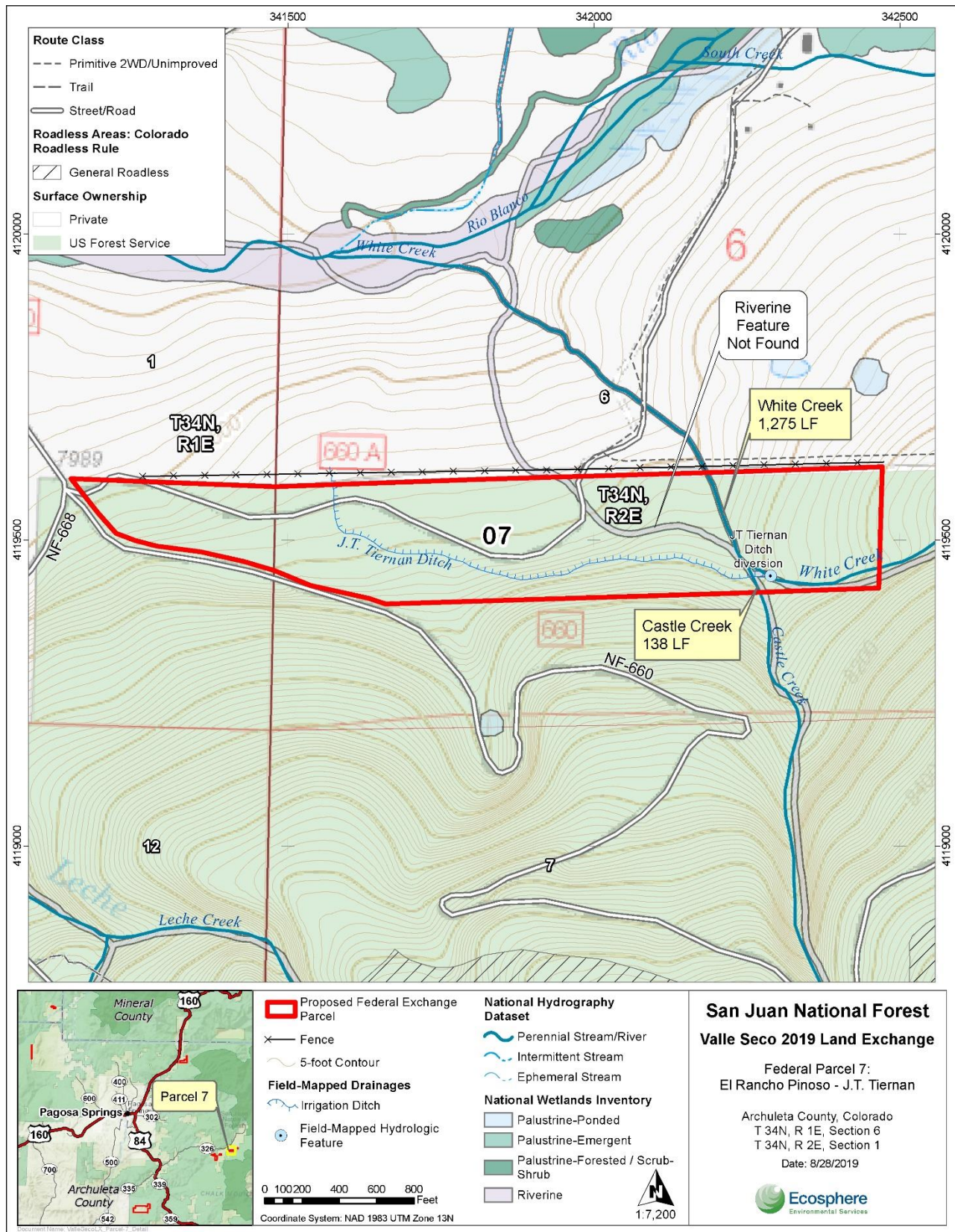


Map A-7. Federal Parcel 6: Rancho del Sol-Inholding



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

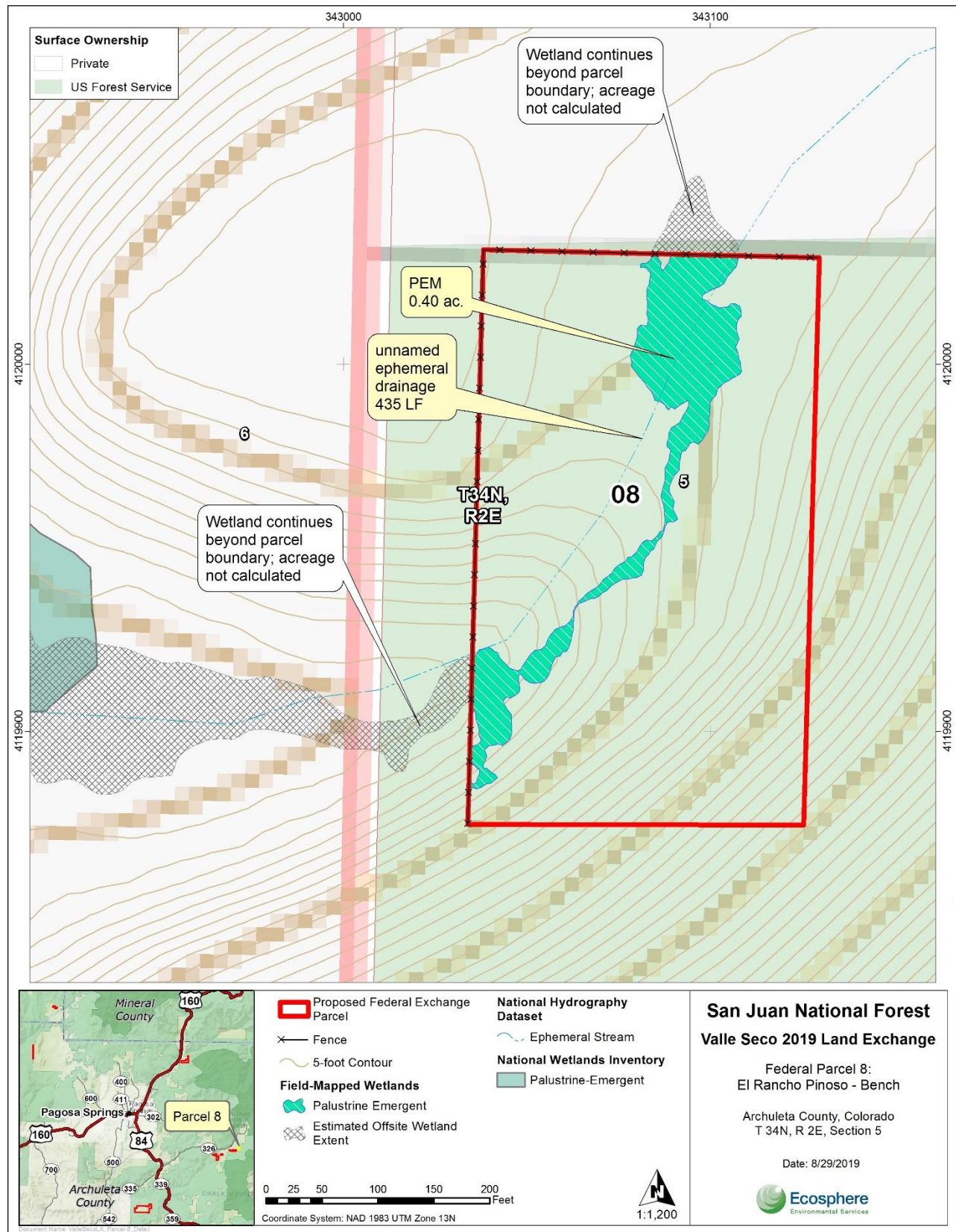


Map A-8. Federal Parcel 7: El Rancho Piñoso-J.T. Tiernan



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

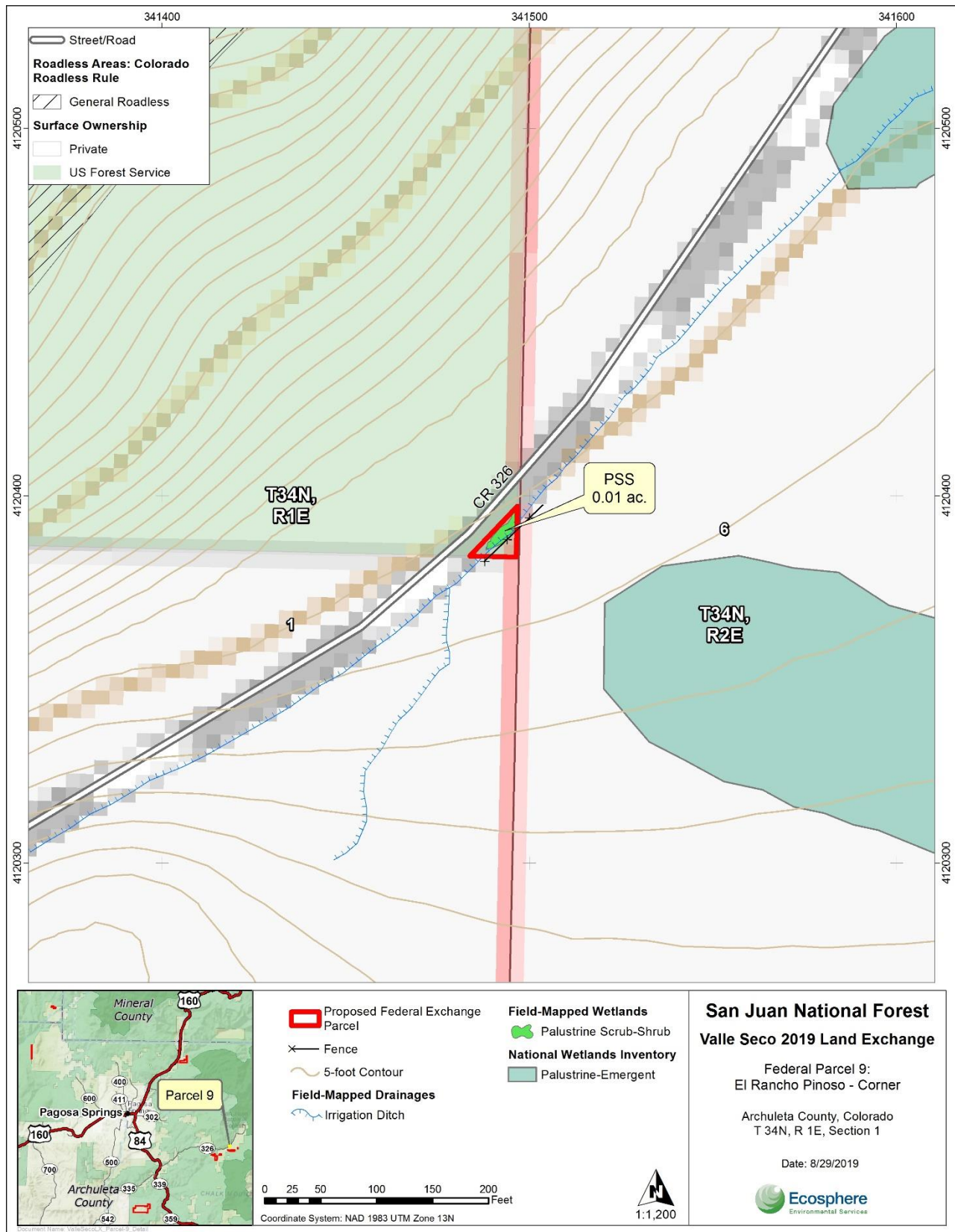


Map A-9. Federal Parcel 8: El Rancho Piñoso-Bench



# Wetland & Floodplain Assessment

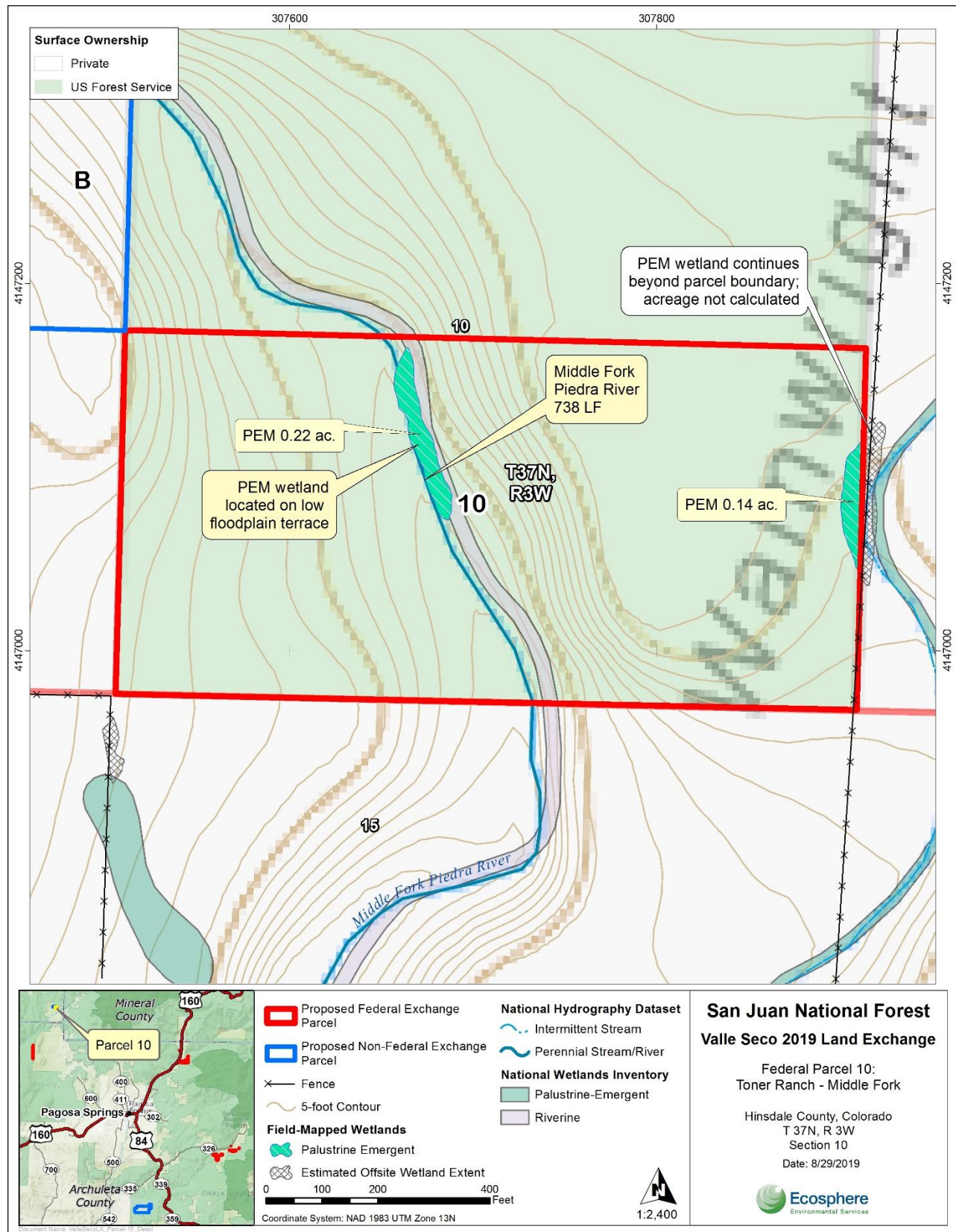
Ecosphere Environmental Services, Inc.



Map A-10. Federal Parcel 9: El Rancho Piñoso-Corner

# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.

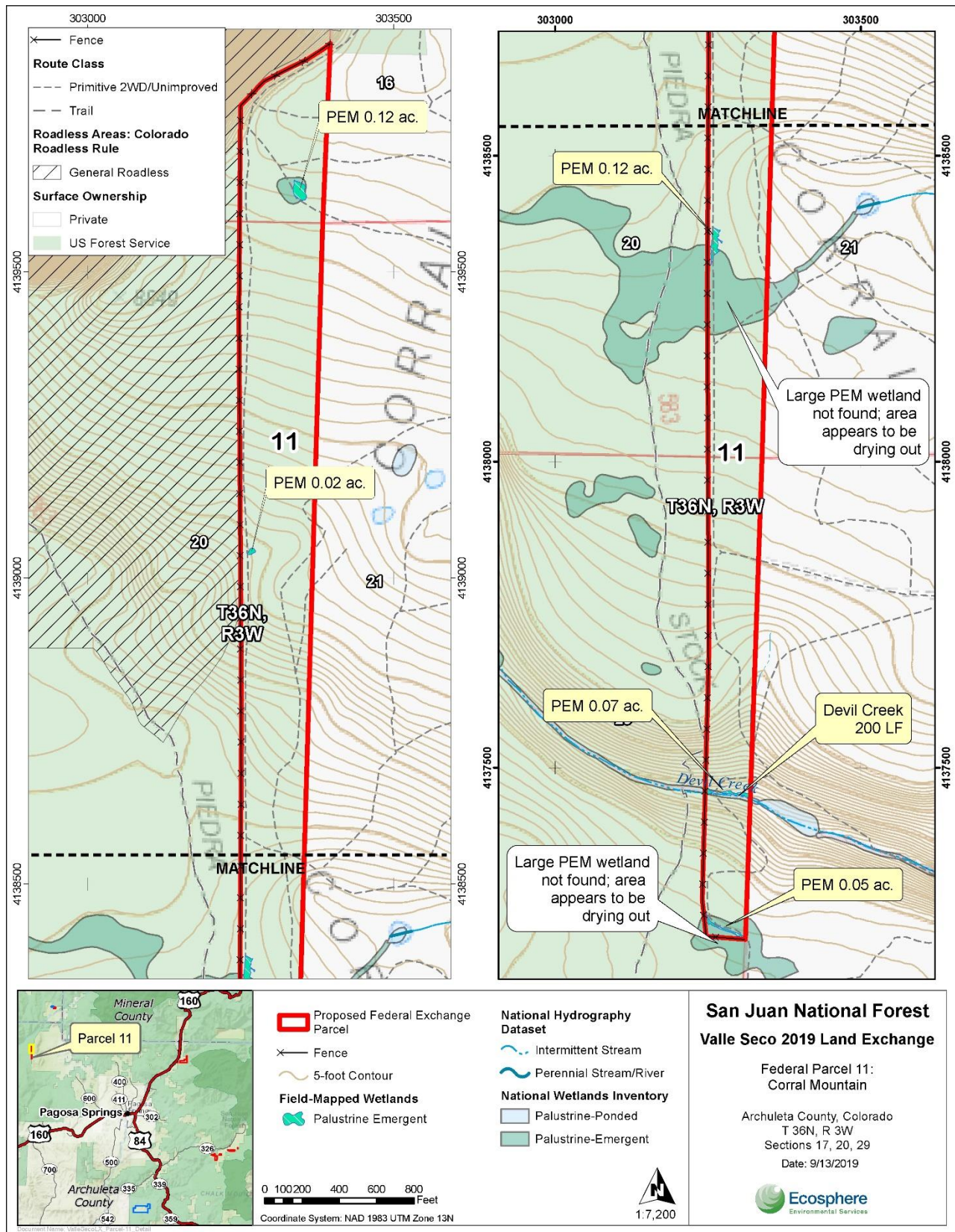


Map A-11. Federal Parcel 10: Toner Ranch-Middle Fork



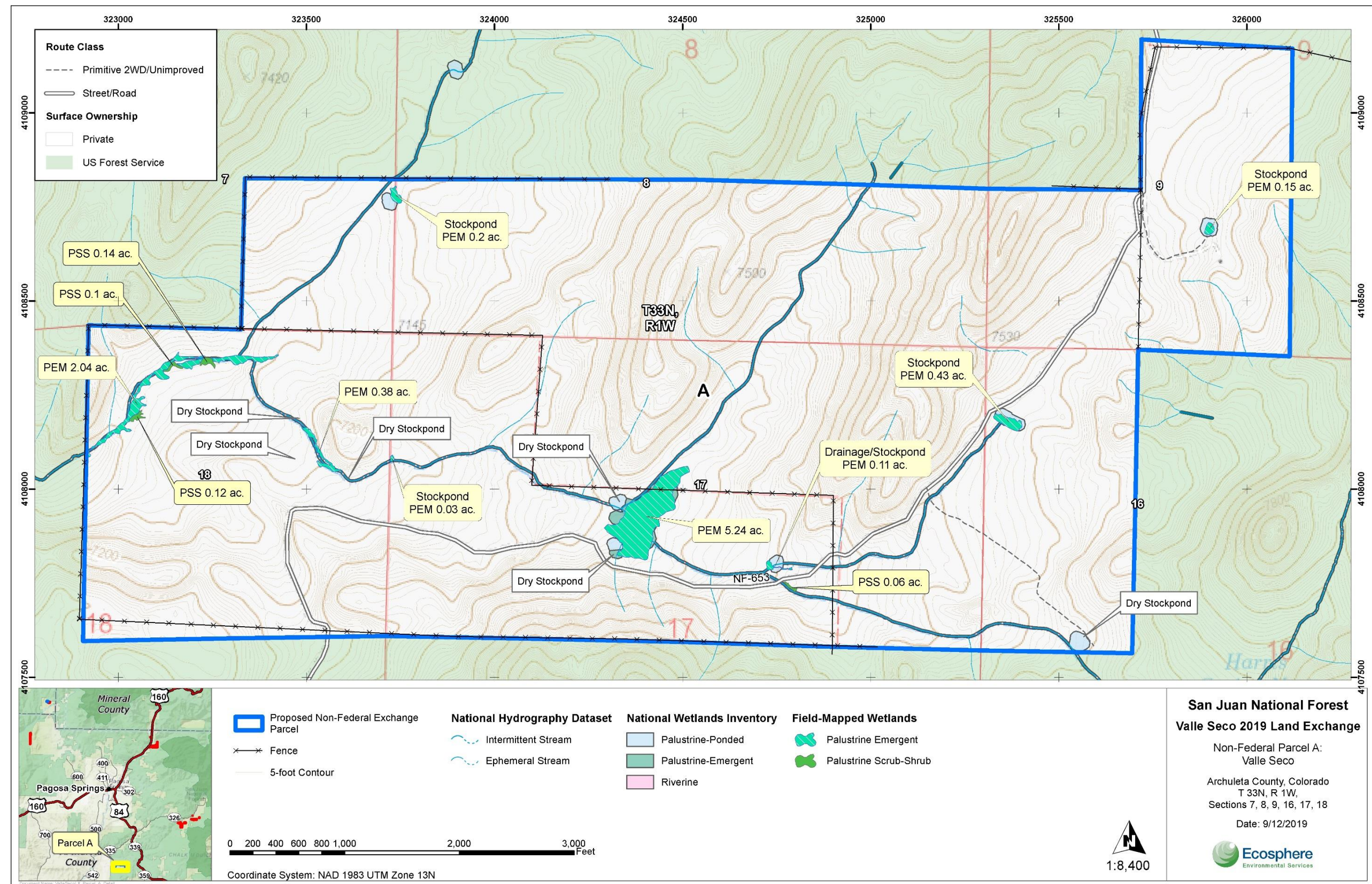
# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.



Map A-12. Federal Parcel 11: Corral Mountain



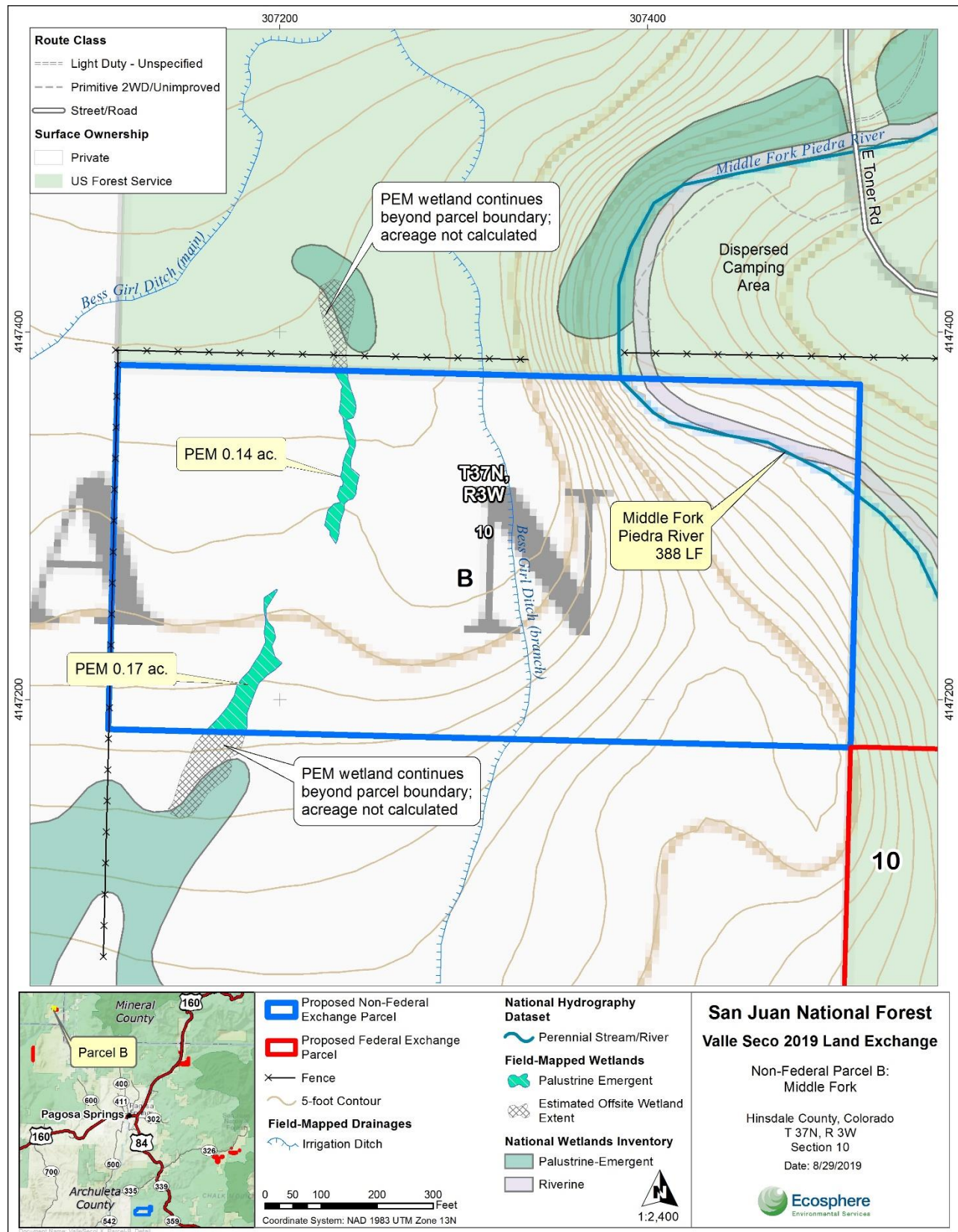


### Map A-13. Non-Federal Parcel A – Valle Seco



# Wetland & Floodplain Assessment

Ecosphere Environmental Services, Inc.



Map A-14. Non-Federal Parcel B – Middle Fork